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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,546	04/07/2005	James A. Proctor Jr	080586	5760
23596 7590 03/20/2009 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
WINDER, PATRICE L				
ART UNIT		PAPER NUMBER		
2445				
NOTIFICATION DATE		DELIVERY MODE		
03/20/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/530,546

Applicant(s)

PROCTOR JR ET AL.

Examiner

Patrice Winder

Art Unit

2445

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 21, 24-34 is/are rejected.
- 7) ☒ Claim(s) 15-20, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Allowable subject matter had been indicated for claims 1-34 in the prior office action. The indication of allowability is withdrawn in light of a newly found prior art.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-14, 21, 24-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lau et al., USPN 6,690,657 (hereafter after referred to as Lau). [claims 1, 25] Lau taught a method for operating a repeater in a wireless local area network (WLAN) having one or more repeaters and a network protocol for communicating between one or more base units and one or more client units, the one or more base units and one or more client units receiving and transmitting on at least a first frequency channel, the network protocol defining multiple operating frequencies (column 5, lines 10-20), the method comprising:

monitoring the multiple operating frequencies to detect a signal transmitted by one of the one or more base units on the first frequency channel (measure receiving channels);

characterizing the signal to determine whether the signal is associated with the one of the one or more base units (measure signal strength of channels); and

selecting a second frequency channel for use by at least one of the one or more repeaters for retransmission of one or more additional signals received on the first frequency channel based on the characterizing of the signal (column 5, line 61-column 6, line 6). Lau's first disclosed embodiment does not specifically teach the multiple frequencies is more than 2 frequencies. However, an alternate embodiment taught more than 2 multiple frequencies (column 7, lines 1-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating an alternate embodiment in Lau's wireless repeater would have improved flexibility. The motivation would have been to provide additional channels.

[claim 2] Lau taught the monitoring includes tuning a detector circuit to one or more of the multiple operating frequencies to detect the signal on the first frequency channel (column 7, lines 45-57).

[claim 3] Lau taught the characterizing includes determining whether one or more base unit characteristics are associated with the signal including: a power level, a known sequence of modulated symbols, a nearly periodic transmission, a level of activity, a minimum packet duration, and a maximum packet duration (column 5, lines 65-67).

[claim 4] Lau taught the selecting the second frequency channel includes applying at least one frequency selection rule based on the characterization for selecting the second frequency channel (column 5, line 65 – column 6, line 6).

[claim 5] Lau taught the at least one frequency selection rule further includes selecting

the second frequency channel a predetermined number of channels away from the fast frequency channel (column 7, lines 20-23).

[claim 6] Lau taught the selecting the second frequency channel includes automatically selecting the second frequency channel based on the frequency of the first frequency channel (column 7, lines 7-10).

[claim 7] Lau taught the selecting the second frequency channel includes selecting the second frequency channel so as to minimize interference between the repeater and the one or more base units, one or more client units, and the one or more repeaters (column 6, lines 25-31).

[claim 8] the selecting the second frequency channel includes monitoring the second frequency channel for a first level of activity indicating the second frequency channel is already in use.

[claim 9] Lau taught the selecting the second frequency channel includes determining whether the second frequency channel has already been selected for use as a repeater channel by another one of the one or more repeaters (column 6, lines 25-31).

[claim 10] Lau taught the method further comprising establishing the second frequency channel as a valid channel for use if the first level of activity monitored is at or below a minimum level (column 9, lines 2-6).

[claim 11] Lau taught the selecting the second frequency channel further includes disqualifying the second frequency channel for selection as a valid repeater channel if one or more signals are detected on the second frequency channel having characteristics associated with a base unit (column 8, lines 63-66).

[claim 12] Lau taught the selecting the second frequency channel further includes pre-selecting a third frequency channel if the second frequency channel is disqualified as a valid repeater channel (column 9, lines 2-6).

[claim 13] Lau taught the method further comprising providing an indication if no valid repeater channel is available (flexible building placement, column 6, lines 40-52).

[claim 14] Lau taught the method further comprising providing an indication if no valid repeater channel is available that the repeater should be moved to a different physical location (repeaters placed in particular physical locations, column 6, lines 40-52).

[claims 21, 30]. A method for operating a repeater in a wireless local area network (WLAN)

having one or more repeaters, a network protocol for communicating between one or more base units and one or more client units, the one or more base units and one or more client units receiving and transmitting on at least a first frequency channel, the network protocol defining multiple operating frequencies valid for operation in the WLAN (column 5, lines 10-20), the method comprising:

- detecting one or more signals on one or more of the multiple operating frequencies (scan receive channels);

- identifying a wireless transmission on a first one of the multiple operating frequencies (measure signal strength of receive channels);

- pre-selecting a second channel for use by the repeater based on at least one rule (column 8, lines 23-27; column 9, lines 64-67);

monitoring the second frequency channel for the presence of the one or more signals indicating the wireless transmission (column 6, lines 25-31); and

setting the repeater to operate on the first frequency channel and the second frequency channel if a number of the one or more signals is at or below a minimum value (column 5, line 61 – column 6, line 6). Lau's first disclosed embodiment does not specifically teach the multiple frequencies is more than 2 frequencies. However, an alternate embodiment taught more than 2 multiple frequencies (column 7, lines 1-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating an alternate embodiment in Lau's wireless repeater would have improved flexibility. The motivation would have been to provide additional channels.

[claim 24] Lau taught a method for operating a repeater in a wireless local area network (WLAN) having one or more repeaters, a network protocol for communicating between one or more base units and one or more client units, the one or more base units and one or more client units receiving and transmitting on at least a fast frequency channel, the network protocol defining multiple operating frequencies valid for operation in the WLAN (column 5, lines 10-20), the method comprising:

detecting one or more signals on one or more of the multiple operating frequencies indicating the presence of one or more wireless transmissions on at least a first frequency channel of the multiple operating frequencies (measure signal strength on receive channels);

pre-selecting a second frequency channel for use by the repeater (column 8, lines 23-27; column 9, lines 64-67);

detecting the one or more signals on the second frequency channel indicating the presence of the one or more wireless transmissions on the second channel (column 6, lines 25-31);

setting the repeater to operate on the first frequency channel and the second frequency channel a number of the one or more signals is at or below a minimum value (column 8, lines 17-24);

transmitting a test signal on the second frequency channel and monitoring the first frequency channel (column 6, lines 25-31); and

qualifying the second frequency channel as a valid channel for operation of the repeater if no other of the one or more repeaters is operating on the first frequency channel and the second frequency channel, otherwise if an other repeater is operating the first frequency channel and the second frequency channel, reducing a power level associated with the test signal to determine a transmission level preventing a feedback loop with the other repeater, and setting the repeater to transmit at the determined level (column 8, lines 60-62). Lau's first disclosed embodiment does not specifically teach the multiple frequencies is more than 2 frequencies. However, an alternate embodiment taught more than 2 multiple frequencies (column 7, lines 1-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made that incorporating an alternate embodiment in Lau's wireless repeater would have improved flexibility. The motivation would have been to provide additional channels.

[claims 26, 31] Lau taught the frequency translating repeater is further configured to provide an indication if no frequency channels are available for the setting (flexible building placement, column 6, lines 40-52).

[claims 27, 32] Lau taught the indication includes indicating that the frequency translating repeater should be moved to a different physical location (flexible building placement, column 6, lines 40-52).

[claims 28, 33] Lau taught the frequency translating repeater is further configured exclusively as a physical layer repeater (applies modulations, column 9, lines 61-67).

[claim 29, 34] Lau taught the frequency translating repeater is further configured exclusively as an RF signal repeater (column 4, lines 9-11).

Allowable Subject Matter

4. Claims 15-20, 22-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrice Winder whose telephone number is 571-272-3935. The examiner can normally be reached on Monday-Friday, 10:30 am-7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Patrice Winder/
Primary Examiner, Art Unit 2445

March 16, 2009